A/Aichi/69/94-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Gifu/2/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Ibaraki/1/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Kagoshima/10/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Niigata/124/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Saga/447/94-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Tochigi/44/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Akita/1/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Hebei/19/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Sendai/c373/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/Osaka/c1/95-M2-H3N2	MSLLTEVETPIRNEWECRCNGSSD
A/FORT-WARREN/1/50-M2-H1N1	MSLLTEVETPIRNEWGCRCNDSSD
A/USSR/90/77-M2-H1N1	MSLLTEVETPIRNEWGCRCNDSSD
A/Aichi/2/68-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Port-Chalmers/1/73-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Udorn/72-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/SINGAPORE/1/57-M2-H2N2	MSLLTEVETPIRNEWGCRCNDSSD
A/ANN-ARBOR/6/60-M2-H2N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Korea/426/68-M2-H2N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Leningrad/134/57-M2-H2N2	MSLLTEVETPIRNEWGCRCNDSSD
A/BANGKOK/1/79-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Fukushima/114/96-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Fukushima/140/96-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Akita/1/94-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Guangdong/39/89-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Kitakyushu/159/93-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Memphis/8/88-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Miyagi/29/95-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Niigata/137/96-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Shiga/20/95-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Sendai/c384/94-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/H3N2/NY/83-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Sendai/c182/94-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Shiga/25/97-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/Hebei/12/93-M2-H3N2	MSLLTEVETPIRNEWGCRCNDSSD
A/WSN/33-M2-H1N1	MSLLTEVETPIRNEWGCRCNGSSD
A/Puerto-Rico/8/34-M2-H1N1	********** ****.***

Figure 1

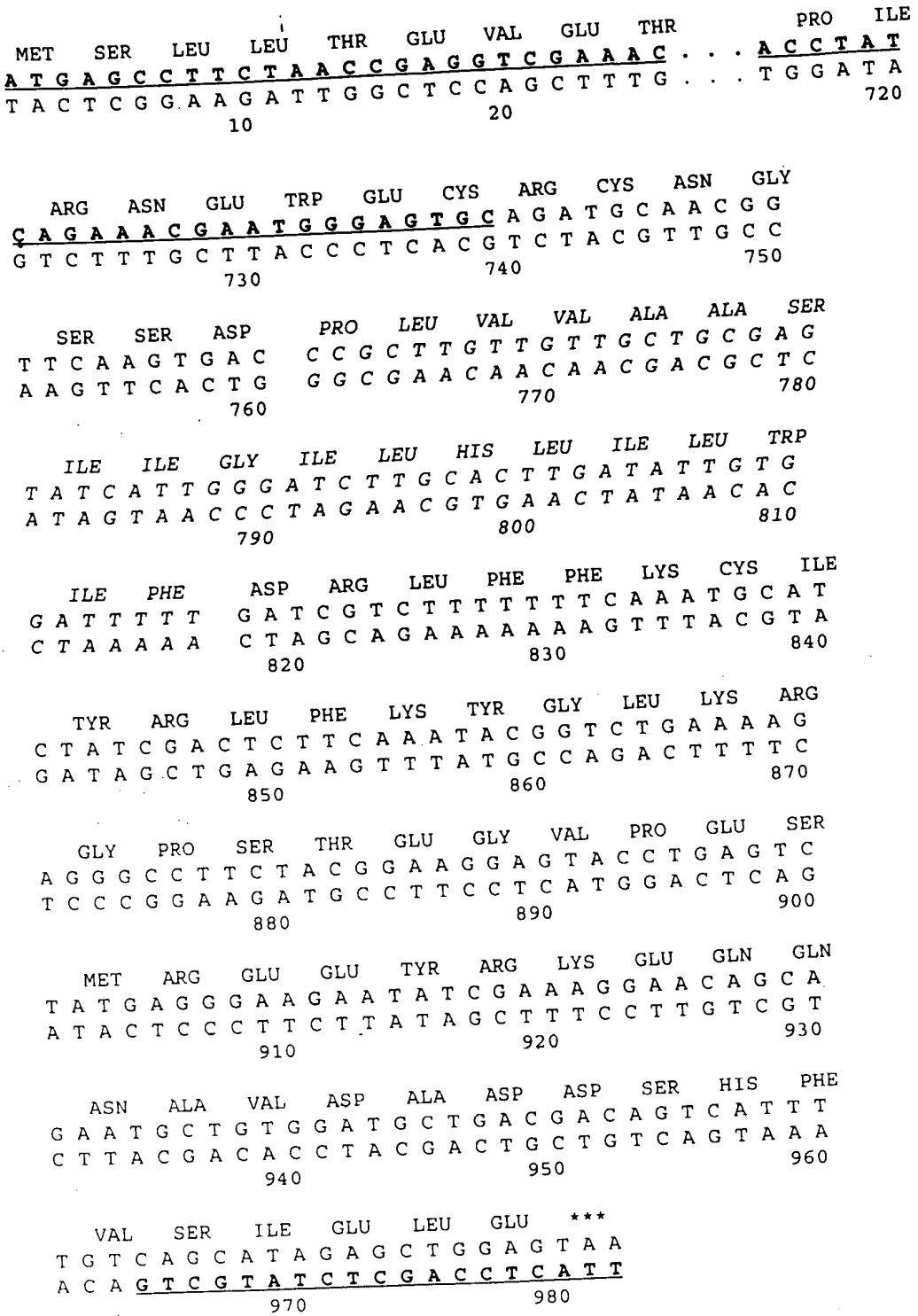

MET SER LEU LEU THR GLU VAL GLU THR . . . PRO ILE
ATGAGCCTTCTAACCGAGGTCGAAAC . . . ACCTAT
TACTCGGAAGATTGGCTCCAGCTTTG . . . TGGATA
10 20 720
ARG ASN GLU TRP GLU CYS ARG CYS ASN GLY
CAGAAACGAATGGGAGTGC AGATGCAACGG
GTCTTTGCTTACCCTCACGTCTACGTTGCC
730 740 750
SER SER ASP PRO LEU VAL VAL ALA ALA SER
TTCAAGTGAC CCGCTTGTTGTTGCTGCGAG
AAGTTCACTG GGCGAACAACAACGACGCTC
760 770 780
ILE ILE GLY ILE LEU HIS LEU ILE LEU TRP
TATCATTGGGATCTTGCACTTGATATTGTG
ATAGTAACCCTAGAACGTGAACTATAACAC
790 800 810
ILE PHE ASP ARG LEU PHE PHE LYS CYS ILE
GATTTTT GATCGTCTTTTTTTCAAATGCAT
CTAAAAA CTAGCAGAAAAAAAGTTTACGTA
820 830 840
TYR ARG LEU PHE LYS TYR GLY LEU LYS ARG
CTATCGACTCTTCAAATACGGTCTGAAAAG
GATAGCTGAGAAGTTTATGCCAGACTTTTC
850 860 870
GLY PRO SER THR GLU GLY VAL PRO GLU SER
AGGGCCTTCTACGGAAGGAGTACCTGAGTC
TCCCGGAAGATGCCTTCCTCATGGACTCAG
880 890 900
MET ARG GLU GLU TYR ARG LYS GLU GLN GLN
TATGAGGGAAGAATATCGAAAGGAACAGCA
ATACTCCCTTCTTATAGCTTTCCTTGTCGT
910 920 930
ASN ALA VAL ASP ALA ASP ASP SER HIS PHE
GAATGCTGTGGATGCTGACGACAGTCATTT
CTTACGACACCTACGACTGCTGTCAGTAAA
940 950 960
VAL SER ILE GLU LEU GLU ***
TGTCAGCATAGAGCTGGAGTAA
ACA GTCGTATCTCGACCTCATT
970 980

Figure 2

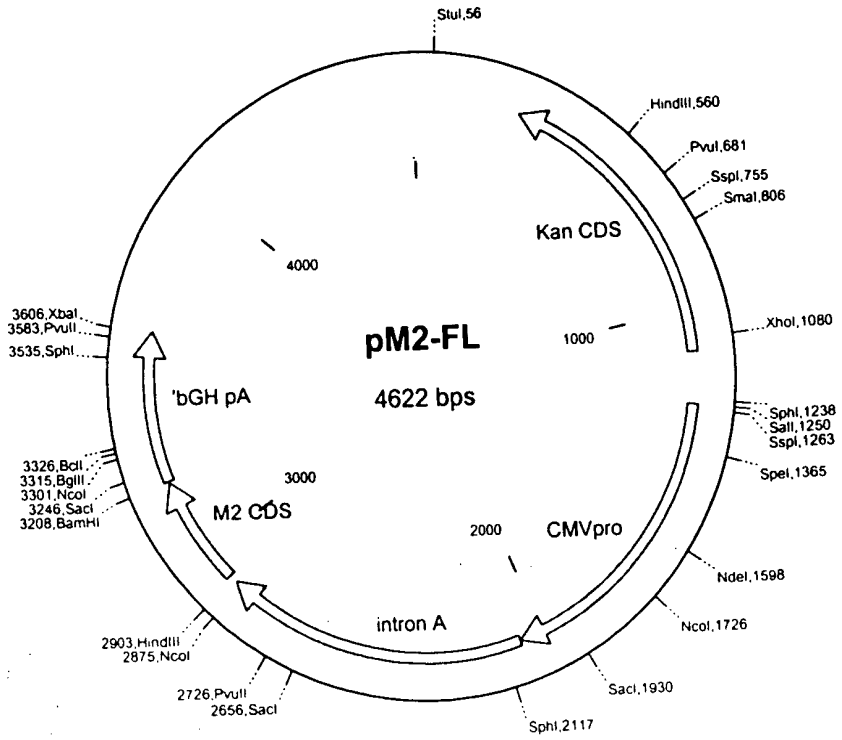
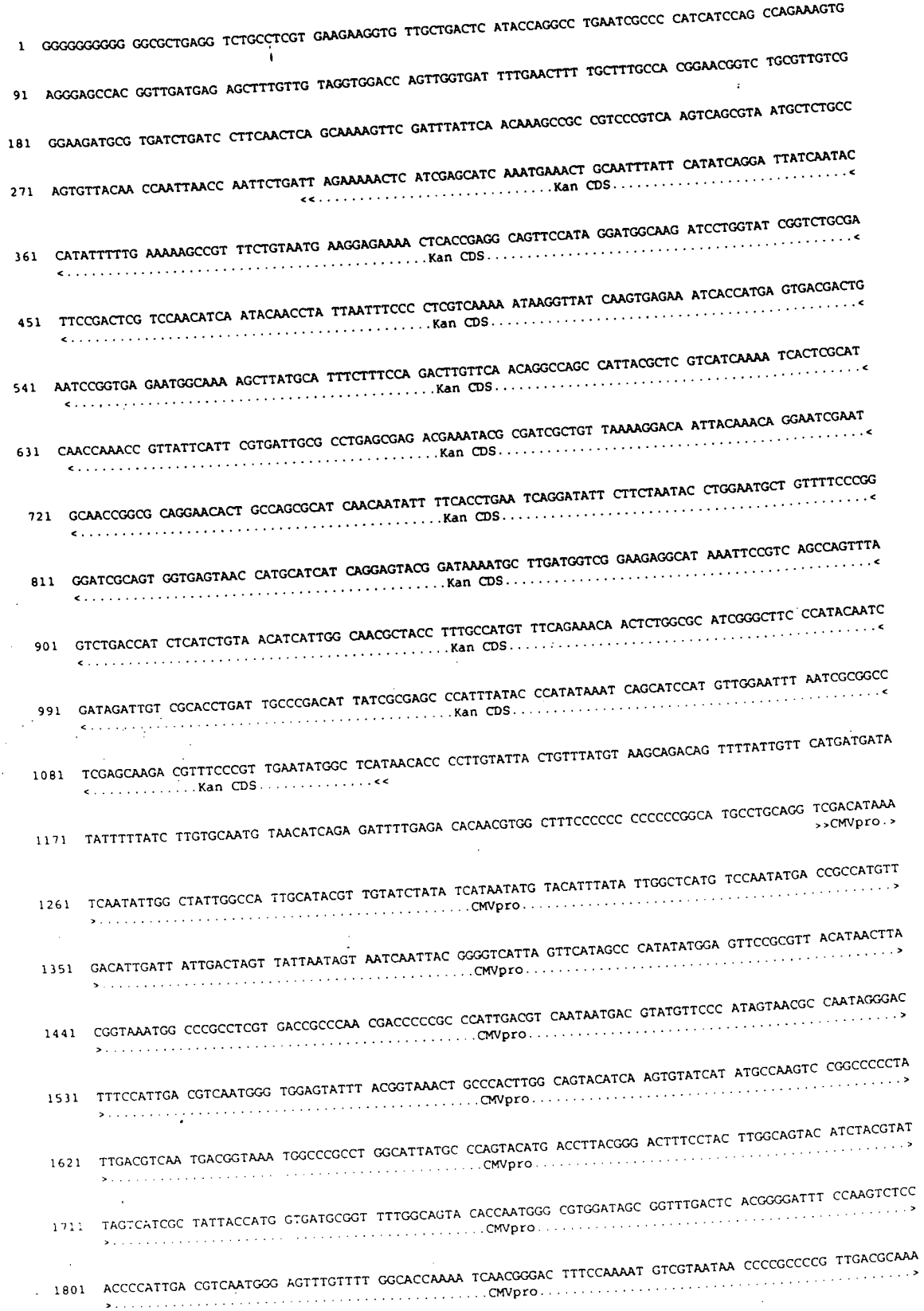
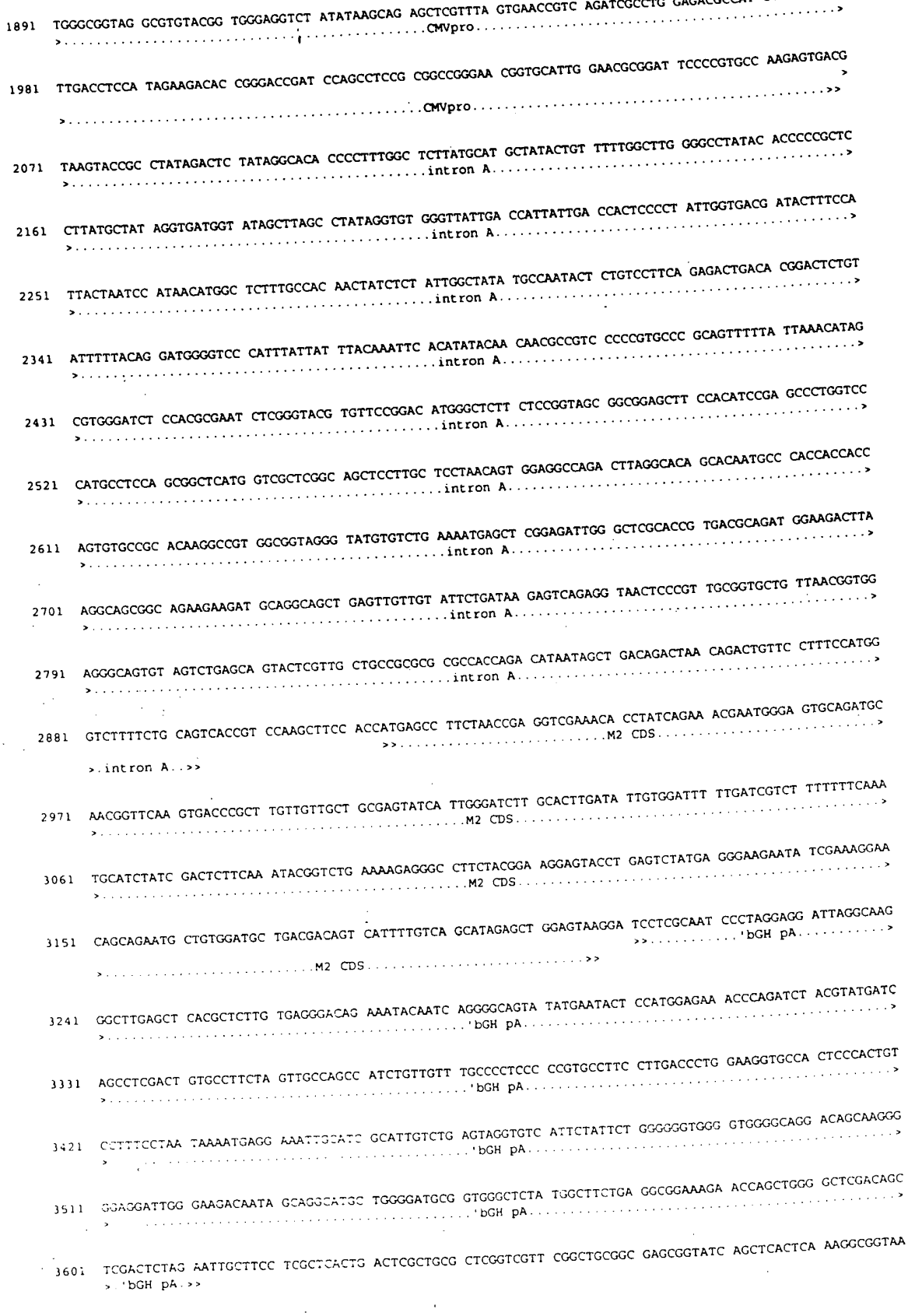

StuI,56
HindIII,560
PvuI,681
SspI,755
SmaI,806
Kan CDS
4000
1000
pM2-FL
4622 bps
XhoI,1080
3606,XbaI
3583,PvuII
3535,SphI
'bGH pA
SphI,1238
SalI,1250
SspI,1263
SpeI,1365
3326,BclI
3315,BglII
3301,NcoI
3246,SacI
3208,BamHI
3000
M2 CDS
2000
CMVpro
NdeI,1598
NcoI,1726
intron A
2903,HindIII
2875,NcoI
2726,PvuII
2656,SacI
SacI,1930
SphI,2117

Figure 3


1 GGGGGGGGGG GGCGCTGAGG TCTGCCTCGT GAAGAAGGTG TTGCTGACTC ATACCAGGCC TGAATCGCCC CATCATCCAG CCAGAAAGTG
91 AGGGAGCCAC GGTTGATGAG AGCTTTGTTG TAGGTGGACC AGTTGGTGAT TTTGAACTTT TGCTTTGCCA CGGAACGGTC TGCGTTGTCG
181 GGAAGATGCG TGATCTGATC CTTCAACTCA GCAAAAGTTC GATTTATTCA ACAAAGCCGC CGTCCCGTCA AGTCAGCGTA ATGCTCTGCC
271 AGTGTTACAA CCAATTAACC AATTCTGATT AGAAAAACTC ATCGAGCATC AAATGAAACT GCAATTTATT CATATCAGGA TTATCAATAC
Kan CDS
361 CATATTTTTG AAAAAGCCGT TTCTGTAATG AAGGAGAAAA CTCACCGAGG CAGTTCCATA GGATGGCAAG ATCCTGGTAT CGGTCTGCGA
Kan CDS
451 TTCCGACTCG TCCAACATCA ATACAACCTA TTAATTTCCC CTCGTCAAAA ATAAGGTTAT CAAGTGAGAA ATCACCATGA GTGACGACTG
Kan CDS
541 AATCCGGTGA GAATGGCAAA AGCTTATGCA TTTCTTTCCA GACTTGTTCA ACAGGCCAGC CATTACGCTC GTCATCAAAA TCACTCGCAT
Kan CDS
631 CAACCAAACC GTTATTCATT CGTGATTGCG CCTGAGCGAG ACGAAATACG CGATCGCTGT TAAAAGGACA ATTACAAACA GGAATCGAAT
Kan CDS
721 GCAACCGGCG CAGGAACACT GCCAGCGCAT CAACAATATT TTCACCTGAA TCAGGATATT CTTCTAATAC CTGGAATGCT GTTTTCCCGG
Kan CDS
811 GGATCGCAGT GGTGAGTAAC CATGCATCAT CAGGAGTACG GATAAAATGC TTGATGGTCG GAAGAGGCAT AAATTCCGTC AGCCAGTTTA
Kan CDS
901 GTCTGACCAT CTCATCTGTA ACATCATTGG CAACGCTACC TTTGCCATGT TTCAGAAACA ACTCTGGCGC ATCGGGCTTC CCATACAATC
Kan CDS
991 GATAGATTGT CGCACCTGAT TGCCCGACAT TATCGCGAGC CCATTTATAC CCATATAAAT CAGCATCCAT GTTGGAATTT AATCGCGGCC
Kan CDS
1081 TCGAGCAAGA CGTTTCCCGT TGAATATGGC TCATAACACC CCTTGTATTA CTGTTTATGT AAGCAGACAG TTTTATTGTT CATGATGATA
Kan CDS
1171 TATTTTTATC TTGTGCAATG TAACATCAGA GATTTTGAGA CACAACGTGG CTTTCCCCCC CCCCCCGGCA TGCCTGCAGG TCGACATAAA
CMVpro
1261 TCAATATTGG CTATTGGCCA TTGCATACGT TGTATCTATA TCATAATATG TACATTTATA TTGGCTCATG TCCAATATGA CCGCCATGTT
CMVpro
1351 GACATTGATT ATTGACTAGT TATTAATAGT AATCAATTAC GGGGTCATTA GTTCATAGCC CATATATGGA GTTCCGCGTT ACATAACTTA
CMVpro
1441 CGGTAAATGG CCCGCCTCGT GACCGCCCAA CGACCCCCGC CCATTGACGT CAATAATGAC GTATGTTCCC ATAGTAACGC CAATAGGGAC
CMVpro
1531 TTTCCATTGA CGTCAATGGG TGGAGTATTT ACGGTAAACT GCCCACTTGG CAGTACATCA AGTGTATCAT ATGCCAAGTC CGGCCCCCTA
CMVpro
1621 TTGACGTCAA TGACGGTAAA TGGCCCGCCT GGCATTATGC CCAGTACATG ACCTTACGGG ACTTTCCTAC TTGGCAGTAC ATCTACGTAT
CMVpro
1711 TAGTCATCGC TATTACCATG GTGATGCGGT TTTGGCAGTA CACCAATGGG CGTGGATAGC GGTTTGACTC ACGGGGATTT CCAAGTCTCC
CMVpro
1801 ACCCCATTGA CGTCAATGGG AGTTTGTTTT GGCACCAAAA TCAACGGGAC TTTCCAAAAT GTCGTAATAA CCCCGCCCCG TTGACGCAAA
CMVpro


1891 TGGGCGGTAG GCGTGTACGG TGGGAGGTCT ATATAAGCAG AGCTCGTTTA GTGAACCGTC AGATCGCCTG GAGACGCCAT CCACGCTGTT
CMVpro
1981 TTGACCTCCA TAGAAGACAC CGGGACCGAT CCAGCCTCCG CGGCCGGGAA CGGTGCATTG GAACGCGGAT TCCCCGTGCC AAGAGTGACG
CMVpro
2071 TAAGTACCGC CTATAGACTC TATAGGCACA CCCCTTTGGC TCTTATGCAT GCTATACTGT TTTTGGCTTG GGGCCTATAC ACCCCCGCTC
intron A
2161 CTTATGCTAT AGGTGATGGT ATAGCTTAGC CTATAGGTGT GGGTTATTGA CCATTATTGA CCACTCCCCT ATTGGTGACG ATACTTTCCA
intron A
2251 TTACTAATCC ATAACATGGC TCTTTGCCAC AACTATCTCT ATTGGCTATA TGCCAATACT CTGTCCTTCA GAGACTGACA CGGACTCTGT
intron A
2341 ATTTTTACAG GATGGGGTCC CATTTATTAT TTACAAATTC ACATATACAA CAACGCCGTC CCCCGTGCCC GCAGTTTTTA TTAAACATAG
intron A
2431 CGTGGGATCT CCACGCGAAT CTCGGGTACG TGTTCCGGAC ATGGGCTCTT CTCCGGTAGC GGCGGAGCTT CCACATCCGA GCCCTGGTCC
intron A
2521 CATGCCTCCA GCGGCTCATG GTCGCTCGGC AGCTCCTTGC TCCTAACAGT GGAGGCCAGA CTTAGGCACA GCACAATGCC CACCACCACC
intron A
2611 AGTGTGCCGC ACAAGGCCGT GGCGGTAGGG TATGTGTCTG AAAATGAGCT CGGAGATTGG GCTCGCACCG TGACGCAGAT GGAAGACTTA
intron A
2701 AGGCAGCGGC AGAAGAAGAT GCAGGCAGCT GAGTTGTTGT ATTCTGATAA GAGTCAGAGG TAACTCCCGT TGCGGTGCTG TTAACGGTGG
intron A
2791 AGGGCAGTGT AGTCTGAGCA GTACTCGTTG CTGCCGCGCG CGCCACCAGA CATAATAGCT GACAGACTAA CAGACTGTTC CTTTCCATGG
intron A
2881 GTCTTTTCTG CAGTCACCGT CCAAGCTTCC ACCATGAGCC TTCTAACCGA GGTCGAAACA CCTATCAGAA ACGAATGGGA GTGCAGATGC
M2 CDS
intron A
2971 AACGGTTCAA GTGACCCGCT TGTTGTTGCT GCGAGTATCA TTGGGATCTT GCACTTGATA TTGTGGATTT TTGATCGTCT TTTTTTCAAA
M2 CDS
3061 TGCATCTATC GACTCTTCAA ATACGGTCTG AAAAGAGGGC CTTCTACGGA AGGAGTACCT GAGTCTATGA GGGAAGAATA TCGAAAGGAA
M2 CDS
3151 CAGCAGAATG CTGTGGATGC TGACGACAGT CATTTTGTCA GCATAGAGCT GGAGTAAGGA TCCTCGCAAT CCCTAGGAGG ATTAGGCAAG
'bGH pA
M2 CDS
3241 GGCTTGAGCT CACGCTCTTG TGAGGGACAG AAATACAATC AGGGGCAGTA TATGAATACT CCATGGAGAA ACCCAGATCT ACGTATGATC
'bGH pA
3331 AGCCTCGACT GTGCCTTCTA GTTGCCAGCC ATCTGTTGTT TGCCCCTCCC CCGTGCCTTC CTTGACCCTG GAAGGTGCCA CTCCCACTGT
'bGH pA
3421 CCTTTCCTAA TAAAATGAGG AAATTGCATC GCATTGTCTG AGTAGGTGTC ATTCTATTCT GGGGGGTGGG GTGGGGCAGG ACAGCAAGGG
'bGH pA
3511 GGAGGATTGG GAAGACAATA GCAGGCATGC TGGGGATGCG GTGGGCTCTA TGGCTTCTGA GGCGGAAAGA ACCAGCTGGG GCTCGACAGC
'bGH pA
3601 TCGACTCTAG AATTGCTTCC TCGCTCACTG ACTCGCTGCG CTCGGTCGTT CGGCTGCGGC GAGCGGTATC AGCTCACTCA AAGGCGGTAA
'bGH pA

3691 TACGGTTATC CACAGAATCA GGGGATAACG CAGGAAAGAA CATGTGAGCA AAAGGCCAGC AAAAGGCCAG GAACCGTAAA AAGGCCGCGT

3781 TGCTGGCGTT TTTCCATAGG CTCCGCCCCC CTGACGAGCA TCACAAAAAT CGACGCTCAA GTCAGAGGTG GCGAAACCCG ACAGGACTAT

3871 AAAGATACCA GGCGTTTCCC CCTGGAAGCT CCCTCGTGCG CTCTCCTGTT CCGACCCTGC CGCTTACCGG ATACCTGTCC GCCTTTCTCC

3961 CTTCGGGAAG CGTGGCGCTT TCTCAATGCT CACGCTGTAG GTATCTCAGT TCGGTGTAGG TCGTTCGCTC CAAGCTGGGC TGTGTGCACG

4051 AACCCCCCGT TCAGCCCGAC CGCTGCGCCT TATCCGGTAA CTATCGTCTT GAGTCCAACC CGGTAAGACA CGACTTATCG CCACTGGCAG

4141 CAGCCACTGG TAACAGGATT AGCAGAGCGA GGTATGTAGG CGGTGCTACA GAGTTCTTGA AGTGGTGGCC TAACTACGGC TACACTAGAA

4231 GGACAGTATT TGGTATCTGC GCTCTGCTGA AGCCAGTTAC CTTCGGAAAA AGAGTTGGTA GCTCTTGATC CGGCAAACAA ACCACCGCTG

4321 GTAGCGGTGG TTTTTTTGTT TGCAAGCAGC AGATTACGCG CAGAAAAAAA GGATCTCAAG AAGATCCTTT GATCTTTTCT ACGGGGTCTG

4411 ACGCTCAGTG GAACGAAAAC TCACGTTAAG GGATTTTGGT CATGAGATTA TCAAAAAGGA TCTTCACCTA GATCCTTTTA AATTAAAAAT

4501 GAAGTTTTAA ATCAATCTAA AGTATATATG AGTAAACTTG GTCTGACAGT TACCAATGCT TAATCAGTGA GGCACCTATC TCAGCGATCT

4591 GTCTATTTCG TTCATCCATA GTTGCCTGAC TC

Figure 4

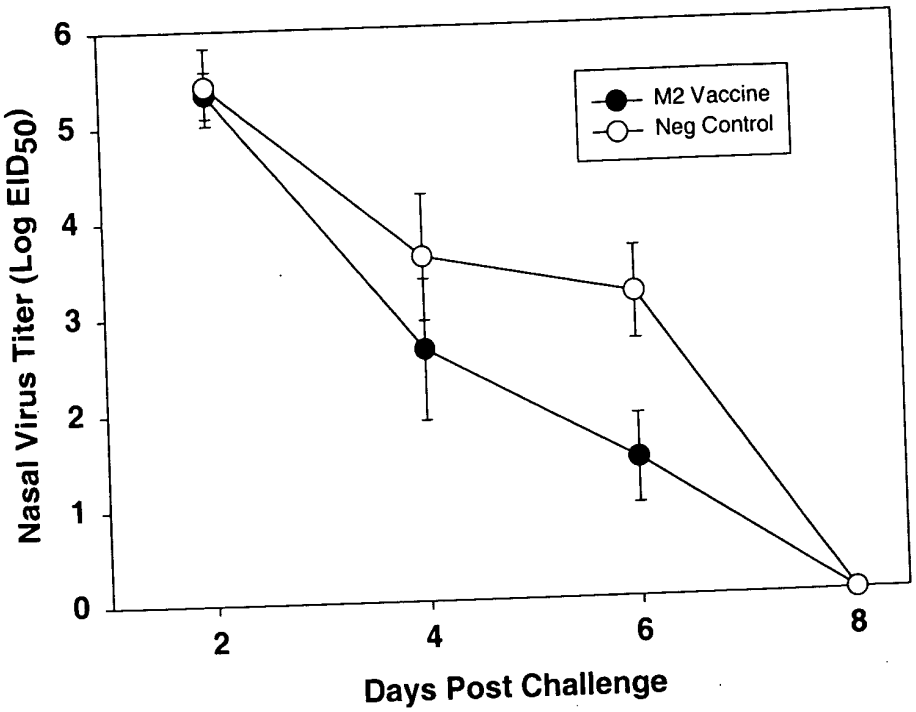

Nasal Virus Titer (Log EID_{50})
6
5
4
3
2
1
0
2
4
6
8
Days Post Challenge
M2 Vaccine
Neg Control

Figure 5